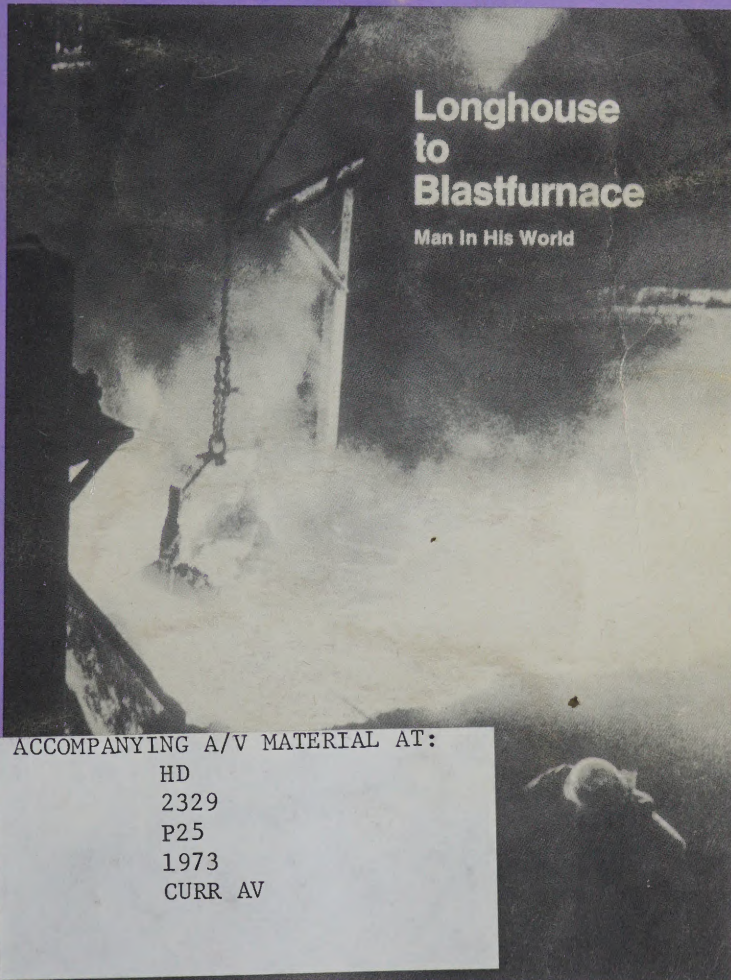




# Teachers' Guide

## Longhouse to Blastfurnace



### Longhouse to Blastfurnace

Man In His World

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## MAN IN HIS WORLD

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# Teachers' Guide

## Longhouse to Blastfurnace

*Growth of an Industrial Community*

MAN IN HIS WORLD



**Fitzhenry & Whiteside Limited**

### INTRODUCTION

In the past, social studies has often failed to project the dynamic character of society. It has been more descriptive than analytical in nature. The rule was to accept rather than question, hypothesize or predict.

Times have changed. The modern teacher encourages creative thinking, decision-making, skill development and a concern for ideas.

*Longhouse to Blastfurnace* has been written with these changes in mind. The book encourages teacher and student to analyze and explain social situations as well as to work at uncovering and understanding relationships. It urges the student to make rational decisions.

Decision-making involves three basic elements: knowledge, values and action. Enough content has been included in *Longhouse to Blastfurnace* to allow the student to work from a solid base.

Values, which include feelings, attitudes and beliefs, are often as significant as knowledge in reaching a decision. The teacher must design ways to help students discover their world of values, analyze them, modify them and perhaps re-organize them.

In order to facilitate action, the book has built-in opportunities for hypothesizing, predicting and expressing feelings. Students should become conscious of the problems of human interaction and appreciate the skills they'll need to deal effectively with these problems.

*Longhouse to Blastfurnace* supports and furthers the concepts set forward in *Understanding Communities*. The conceptual aims and objectives are threefold:

1. Communities interact with their environment as a part of their specialization and in connection with other aspects of community life.
2. Communities respond to and make use of certain characteristics of their setting. In doing so, they alter the surroundings and must adjust to what has become a new environment.
3. Specialization makes communities increasingly dependent on other communities, hence interaction.

### PAGE 3

A discussion of the words in the first question will set the stage for the student to appreciate the broad theme of the book. This involves the move from a primitive, subsistent, semi-nomadic to a sedentary, urban and industrial way of life.

The remaining questions implement the ideas set forth in the introduction – *acquire knowledge, take action, make value judgments.*

### PAGE 5

Students must be encouraged to examine the information in the Did You Know? sections and apply the ideas to the concepts of "slash and burn" and a semi-nomadic way of life.

The simple storyline provides facts which will allow the students to tackle questions 2 and 3.

Questions 4 and 5 are included not only to expand the student's vocabulary, but to provide a basis for comparison, prediction and future studies.

If students wish to solve simple problems, ask about the size of the village, the longhouse and the fields. Consider why it was not felt feasible to put a scale on this sketch. Remember, the process of enquiry, the use of evidence to support an answer, is in this instance, the purpose of the exercise. Worrying about finding a simple, correct answer should not get in the way of the larger objective.

### PAGES 6 – 7

These pages are tied together by the three pictures. Have the children explain the relationship between pictures 1, 2 and 3, by making reference to the environmental control of climate.

The purpose of the "Things to Do" exercise is to enable the children, after touching sand and clay, to hypothesize about the usefulness of each in a technology limited to primitive tools. It should become clear that sand heats more quickly, drains more easily and does not compact like clay. It will, therefore, be better suited to a primitive, subsistent agricultural society.

1. The ability to produce and fashion iron is the mark of a society technologically superior to that of the North American Indian.

2. The answer has been hinted at in "Things to Do".

3. The title of the picture on page 4 has all the evidence a child needs to answer this. Referring to the material in this as well as in other books is a skill of research that students need to learn as early as possible.

4. You might consider the need for sunlight as well as space.

5. If "Things to Do" was done well, students will clearly opt for sand. They will be right.

6. Remember, the aim is to let them make decisions.

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## PAGES 8 – 9

The Indian trails and villages are concentrated in the area marked A. Surely this must be sandy or loamy soil. What kind of soil is prevalent in area B?

1. Use this question as value judgment; do not look for an answer that implies a better use of the environment.

2. Man has cleared the land for agriculture, highways, airports, towns and cities. He has polluted the streams. The escarpment has provided limestone for buildings and construction materials such as shale for clay-brick. We no longer can fish the streams or swim and bathe in the waters. We have built docks and factories along our waterfronts, and sail enormous ore and coal-bearing lake boats to our steel producing plants.

## PAGES 10 – 11

To understand how and why the first settlers arrived, it is necessary to examine the underlying conditions and events that affected settlement in the Hamilton region. This will take us back more than 200 years.

This section is designed to develop map skills. Students should learn to read a map just as they might read a page of words. Learning map skills is, however, incidental. We are trying to show how man adapts within a rapidly changing environment. This process is not without problems. The list suggests the changing pattern that man learns to live by.

1. Wilderness/Frontier/Settlement.
2. Indian/Trader/Soldier/Settler.
3. Forest/Trapping/Stumping/Agriculture
4. Sailing Ship/Sleigh/Ox Cart/Canoe
5. Teepee/Log Cabin/House
6. Encampment/Fort/Town/City
7. Blanket / Buckskin / Homespun / Uniform / Dresses

6(A) The dotted line marks the division between settlement and wilderness. The need for the line is open to a variety of hypotheses supported by evidence on the map. For instance, the presence of the army suggests (A) danger (B) the settlers need protection (C) the Indians need protection.

The pictures on the map suggest two different life styles, i.e. wilderness west of the line; settlement, to the east. The arrows suggest settlement encroaching on wilderness. The Government wished to prevent this, possibly to avoid friction between Indians and whites; possibly to protect the fur trade.

6(B) White fur traders were allowed into the Indian territories (see map). No doubt the army regularly crossed the line. It was against the law for Indians or settlers to cross.

7. The settlements west of the line are forts. This supports the hypothesis that military posts were necessary to control the Indian "menace". On the other hand, they could be fur trading posts. In either case, forts are not settlements in the proper sense of the word. All this reinforces our hypothesis that life and conditions west of the line was primitive, savage, and possibly dangerous. The "line", by the way, is the Royal Proclamation Line of 1763. The regulations set down by the Proclamation can be found in numerous textbooks. Students may observe that some settlers

appear to have disobeyed the Proclamation as evidenced by the presence of some log huts.

8. If this question puzzles the student, let the problem wait until he has studied the map on the next page.

9. The Proclamation Line and the frontier line are not identical. This indicates that settlement in some areas had not reached the Proclamation Line while the frontier had advanced beyond the line in other areas. Environmental factors usually account for these discrepancies.

10. Just about everything on the map suggests that the times are "long ago!" Uniforms, dress, oxen, sailing ships, Indians, spinning wheel, etc., are evidence of a by-gone era. The actual date of the OLD SETTLEMENT MAP would be no earlier than 1763 when the Royal Proclamation Line was drawn. It could be no later than 1774 when the line was withdrawn.

## PAGES 12 – 13

1. Technically, this is not a topographic map at all. It depicts hills and valleys by pictorial means rather than by contour lines or colour codes normally found on topographic maps. The intent is the same, as such illustrations are easier understood by young readers.

2. A traveller does not know what path to follow until he has a clear idea of the physical obstacles (mountains, rivers, forests, etc.) that might or might not make his route passable.

3. The irregularities should conform to the physical features. Settlement advances where there are rivers and valleys that assist its progress. On the other hand, settlement is blocked by mountains or the absence of good soil.

4 & 5. Rivers, especially those that cut through mountain barriers should be identified and known by name. They usually provide best access into the interior.

6. It is important to the traveller of those days to know whether the river flows with him or against him. He should be able to tell this from his map reading skills.

7. The Appalachian Mountains, as represented on the map and as seen in the picture, show long ridges with few breaks. Thus, although the mountains are not particularly high, the traveller encounters difficulties.

## PAGES 14 – 15

The earliest date for this map would be 1791, when the new nation, the United States of America shown on the map, is already eight years of age. Settlers have moved into the British territories north of the St. Lawrence River, in the areas marked on the map. The Constitutional Act dividing the old colony of Quebec into Upper and Lower Canada, has become law. The minimum time span between the two maps would be 17 years (1774-1791). However, if we take the Royal Proclamation Act and the Constitutional Act as traditional dates, the time span is 28 years.

1. 1) The British flag has been replaced by the American flag on a sizable portion of the map.
- 2) The frontier, the farthest point of settlement, has been pushed further west.
- 3) The Royal Proclamation Line is no longer in evidence.



- 4) A new line separates the British flag area from the American flag area.
- 5) The settlers in Upper Canada speak English; those in Lower Canada speak French. (Was the 'French fact' evident on the OLD SETTLEMENT MAP?)
- 6) For such a brief time period the influx of settlers is considerable.

2. Each of the preceding points can be enlarged upon in a variety of questions, i.e., "Which flag has replaced the British flag?" and "Why has the U.S. flag replaced the British flag?" etc.

#### PAGE 16

1. This is an innocent way of asking the students to study the evidence on the chart. The less observant will simply add up the number of names on the list and conclude that there are eleven families. The more astute will note that there are two Lands and two Jones on the list. Could this be the same family? The critically observant would note that the name Land is an uncommon name, and that Phoebe has, or had, a husband. Could it be Robert? This likelihood is further enhanced by the fact that they both came from farms in New York Province. The one flaw in the argument occurs when we discover that the Lands settled long distances apart.

The case for the Jones boys is not as clear. Jones, of course, is a common name. Apart from the name nothing matches, although a most important bit of information, Augustus Jones' place of origin, is mysteriously missing.

We do not have clear answers, unless students have found additional evidence on the chart; the best answer would be 10, with 9 and 11 being possible.

#### PAGE 17

We will not solve the question, but the exercise of working with the hypothetical problem helps the student apply certain known factors he is now aware of (wilderness, distances, limited transportation, available routes) and adapting them to the new condition (selecting household goods). What we take may depend on whether we are travelling to Upper Canada or to Nova Scotia, an overland versus a sea route. Passage by sea would permit taking more baggage. A second difficulty arises as some students may *assume* that they have an ox and cart. Does the evidence allow for such an assumption as only household furnishings are shown? Therefore, other forms of property, such as dogs, cattle, oxen, etc., would not appear on this list. In reality, some had oxen, others didn't. In any case, a student must define the problem in his own mind before he can make a rational selection of furnishings.

The choice is not easy. The question of the value of an article has to be kept in mind. The silver candelabra has little value in terms of usefulness in a pioneer cabin, but high money value considering its size and weight and its possible sentimental value (an heirloom perhaps?) On the other hand, a grinding stone could be very useful once a settlement can afford to build a mill, but will prove too heavy and bulky to transport.

If a student will assess priorities, he will choose articles that can be easily transported and will be of greatest value for his survival in a pioneer

environment. Many things, unless of great sentimental value, can be made or built by the settler in his new location. This is true of chairs, cupboards, beds, and the like.

#### PAGE 18

The student is required to relate the chart on pages 14 and 15 and the articles on pages 16 and 17 to the pictures that we now see before us. These certainly suggest two different means of transport. The settlers who came by sea would have come from the coastal areas of the U.S.A.

2. If the game is frontier farming, those who came from frontier farms, rather than from coastal cities, are better prepared to make a go of it. Do the pictures not agree with this observation?

#### PAGE 19

Historically, it is impossible to produce evidence of a mass migration such as this one without providing some reason as to why it should have happened at all.

1. The question of blame is really impossible to answer. Students should recognize that without more evidence, blame or responsibility cannot be fairly assessed. Even then it becomes clear that blame does not rest totally on any one side. This, in itself, is a valuable lesson.

2. This raises the question "Can both stories be true?", and causes one to ask "Were the writers being truthful?" "Is it possible to get two different accounts and suggest that both writers are being truthful?" The concepts of "frame of reference" and "bias" now emerge, although these expressions need never be used. The teacher can probably demonstrate to the class how 'they see what they want to see' or 'how they look at what interests them'. Their accounts will unintentionally become "biased".

3. What can we believe of the event of Lexington? Is it reasonable to assume that where the two stories agree, the facts are probably correct?

4. The "causes" of the trouble must be deeper than our two accounts. Historically, Lexington is what might be called the "immediate" case. As such it is quite superficial unless we probe into the "underlying" cause. By the same reasoning this event has no connection to our story unless we see it in the broader context of what happened.

5. The flag of the United States is a clear indication. The flag we see is an early version of the "Stars and Stripes".

6. Although the two accounts ignore the real source of the trouble, the restrictive nature of the Royal Proclamation enforced by the British Army, is a possible cause, especially since we saw signs of the law being ignored by the pioneers.

#### PAGES 20 - 21

The two newspaper accounts demonstrate divergent views. The British account is relatively free from bias compared to the articles in the Library Press. Is this to be expected?

3. The treatment of the Loyalists by the Colonists reminds one of the punishment of war criminals. Would the Loyalists have done the same to the Revolutionaries if the British had won? Is this sort of treatment justifiable?



4. The Loyalists moved because they had to. They had "bet the wrong horse". Whether to leave or not was decided for them by the Colonists. This analysis is, of course, grossly unfair to those dedicated souls loyal to King and Empire.

#### PAGE 22

1. The settlements along the south shore of Lake Geneva have the most desirable location, with water transportation at their doorsteps, access to Lake Ontario and at the same time protection from the open water. The land on the south shore is the only low-lying area that offers good docking facilities. It can be farmed, although it will need draining.

2. Location A has choice arable land but inadequate docking facilities, due to the high shoreline. Location 3 is too sandy for farming. The beach lacks dock facilities. Location C is not desirable. It is cut off from the lake by the escarpment. Soil on the escarpment is thin. Location D is swampland; the access stream meanders and is too shallow for navigation.

3. The only clue to the location of this area on a larger map is the position of Lake Ontario. Assuming the top of the map is north, the location of these settlers appears to be at the extreme western end of Lake Ontario.

#### PAGE 23

- 1) He was a Loyalist.
- 2) He was the husband of Phoebe Land.
- 3) Settlers from New York Province went by land to Niagara and Quinte.
- 4) Loyalists, such as Phoebe, were at the coast, and went by ship to New Brunswick and Nova Scotia.

#### PAGE 24

2. The plaques tell us that both Mr. and Mrs. Land lived to a ripe old age and had many years together. We can estimate that Mrs. Land was three years older than her husband. As to whether Anna was a daughter, the class can do some simple arithmetic.

The plaques suggest Land was the first white settler. It is not certain whether this is correct.

Note the spelling of Phoebe's name.

Are these special plaques or are they the actual gravestones?

#### PAGES 25 - 26 - 27

The evidence on these 3 pages is designed to:

1. Develop specific basic intellectual skills. Students must DEFINE each item by function, if not by name. (The father's tools are given an assist with the King's List. - see page 20.) Students must CLASSIFY or group items according to criteria, specified by the text or chosen by themselves. This requires a certain low-level INTERPRETATION. Where students are asked to explain relationships they are, in effect, asked to analyze. They are further asked to APPLY the evidence to previous cultures (Indian) and to later cultures (their own). They are asked to make EVALUATIONS of what the changes in technology or in the artifacts mean in terms of a changing life style.

2. Develop an appreciation of a culture and its values. Ponder concepts of subsistence, self-sufficiency, leisure, happiness, perseverance, industry. Pictorial evidence may suggest such concepts and the value placed on them by our pioneer ancestors. Further evidence would be required to validate such hypotheses. Not only the toys but the house and farm tools as well have modern equivalents allowing more time and the opportunity for a better life. What does one do with sparetime in order to achieve a "better" life?

What is a "better life" anyway?

Since our modern Dad probably doesn't work on a farm, what tools or pieces of equipment does he use to earn a living? This may lead the student to realize the high level of specialization our modern man has achieved as distinct from the all-purpose nature of pioneer man.

#### PAGE 26

1. Household chores.
2. Item 1: Iron; Item 2: Grill; Item 3: Foot Warmer. (A hot brick could be placed in it); Item 8: Kerosene lamp.
3. Butter churn (#4) turns cream into butter; Butter bowl (#9) allows Mother to "brine" and "wash" the butter; Butter printer (#5) blocks the butter into pound bricks.
5. The Neck Yoke (#7) used to carry two buckets of water to be delivered to the wash tubs (#10)

#### PAGE 28

The various jobs to be completed before planting the farmer's crop would include choosing the best land for the first field, clearing woods, burning tree trunks and branches as fertilizer, plowing the fields avoiding tree stumps as best as possible and seeding the crop by hand. The illustration at the bottom of the page is intended to show the burning of tree stumps.

Carrying out these jobs was difficult because of the lack of equipment now available to modern farmers, such as tractors, steel plows, power saws, winches, automatic seeders and fertilizer spreaders. The presence of tree stumps and the lack of knowledge about the climate of the region might have caused problems for the first few years. Feeling cut-off and isolated from the outside world would also burden the life of the new farmer.

As a result, a strong community-spirit existed in frontier settlements. This took the form of community building or field clearing activities. The farmers of an area would join a neighbor who was about to clear a field and help him complete the task in as short a time as possible. The bottom picture illustrates such an action.

#### PAGE 29

The farmer's first home was built to serve as basic shelter for the impending winter. No time was spent making a home elaborate because there were many tasks to be completed, seemingly all at the same time. Consequently, homes were built of roughly hewn logs chinked with mud or plaster, heated with a fireplace and chimney made of fieldstones and mortar. They were usually single storey one or two room buildings with mud floors.



The second home was larger and more elaborate. After 8-10 years most of the farmland suitable for crops would have been cleared; the farm produce would have grown appreciably and the farmer could afford the time and money to build a better home. The building materials used at this time included fieldstones or brick, wooden roofing, many more and larger windows and the addition of a veranda. There would be several rooms and a second floor. Some of these changes were made to accommodate a larger family who could afford to live in better style. The farmer's wife was the one most involved in keeping the house clean and making her family happy and comfortable.

Styles of these farm houses contrast with modern ranch-style and split-level homes. Building materials would not include aluminum siding, metal eavestroughs, coloured asphalt roofing tiles, coloured paints, large bay windows, garages, and concrete sidewalks. Many of these changes are the result of improved technology and the ability of people to pay for them.

#### PAGE 30

The mill site is usually chosen by combining road access with a source of water power – a fast-flowing stream over a steep incline. There should be enough flat land on which to erect the mill buildings. Materials such as stone or bricks had to be available in the area. There should also be a large enough farm community to provide grain for milling to insure an adequate livelihood.

The grindstones shown in the drawing grind the grain brought by the farmers. Their large, flat surfaces move one against the other.

#### PAGE 31

Gravity is a force which pulls objects towards the centre of the earth. Any number of games could be made up to show its effect. These might include weighing to establish the pull of different objects. A ball might be rolled down an inclined surface, etc. The idea is to have the students think up a game or demonstration to illustrate an idea.

Gravity is used to turn the wheel which turns the grindstones inside the mill. Water falls from the trough onto the wheel which turns with the weight of the falling water. Gravity is also used in skiing, tobogganing, in hydroelectric power dams, mining operations that separate heavier ores from lighter waste rock, and water towers.

In the drawing:

- 1) Miller with wheat.
- 2) Mill wheel.
- 3) Grindstones.
- 4) Millrace.
- 5) Driveshaft.

#### PAGE 32

Wheat is used in this example as it was the principal type of grain grown in Ontario at the time. The wheat kernel was of greatest importance and its quality was measured by its size. There will be tremendous variations in the size of grain produced by farmers. The sorting of the grain by the miller would be accomplished with a screen which allows the smaller grains to pass through, thereby trapping the larger, more valuable kernel. Since crop yields were not as large as they are

to-day, each grain was precious and little waste was tolerated. The income of the farmer was totally dependent on the crop and every effort was made to utilize all parts of the wheat grain. In most cases the volume or bulk, was reduced so that the product (flour, whisky, salt pork) could be more easily transported to market.

#### PAGE 33

The student can learn something about the location of a grist mill and apply these ideas to predict other places where mills might be located. He should give valid reasons for his choice(s). If you encourage students to use ideas they have listed to answer question #1, it should not be difficult to answer question #5. The mill shown on the map is ideally located at a road junction on level land, on the largest stream in the area, and at a point where the grade of the water flowing downhill is from 280 to 260 feet over a short distance. Location near a town where housing for the mill owner and workers would be available, is desirable. The mill has a distillery and a hog shed nearby. Once the products are processed they are moved to the warehouse at the lower end of Spencer Creek (not named on the map), the largest stream, from where they are sent to market. The towns are dependent on the mill(s); farmers brought in grain for milling and spent their money on goods they needed for their families or farms. These items would include sugar, salt, manufactured articles, farm machinery and tools.

Locating the mills built after the map was drawn shows several possible sites. The most likely are at numbers 2, 4 and possibly 3. The emphasis should be placed on justifying the choice(s) made.

#### PAGE 34

2. Assist us in moving from place to place.
3. The most obvious groupings are land travel and water travel.
4. The student will suggest additions that are not related to the given modes of travel of that period in time. The articles all suggest early settlement or frontier ways of travel. An automobile does not relate.

#### PAGE 35

An environmental condition is now added to the mode of travel. Environment #1 suggests water travel; #2 moccasins or horse; #3 canoe and moccasins; #4 cart or carriage; #5 Durham boat.

#### PAGES 36 – 37

1. Selection of the means of transportation depends not only on the environment but also on what you are transporting. In part two he only transported himself. In this third part he must take along certain encumbrances.

1) A Sealed Letter would best be sent by horse and rider if the environment permits.

2) The Family would travel best by horse and carriage. If this appears too elegant for pioneers, they would probably choose ox and cart.

3) Lightweight cargo of high value such as a Pack of Furs can best be transported by canoe unless prevented by environmental conditions. The alternative is carrying the packs on one's back (Moccasins).



4) The **Barrel of Flour** must either go by ox cart or by Durham boat.

5) A **2,400 Pounder** must go by Durham boat.

2. We list the items to be carried. The student must choose a mode of transportation and decide which route to take (environment).

- |                         |          |   |
|-------------------------|----------|---|
| 1) The sealed letter    | Route #3 | on horseback                                      |
| 2) The family           | Route #2 | by horse & carriage                               |
| 3) The pack of furs     | Route #4 | by canoe & portage                                |
| 4) The barrels of flour | Route #1 | by ox & cart                                      |
| 5) The cannon           | Route #4 | by raft & portage, if it can be rolled or dragged |

The preceding "puzzle" has been used to make students aware of existing relationships between the environment, the mode of transportation and things to be transported.

## PAGE 38

The introduction of steam-propelled transportation should illustrate the basic hypothesis of the better the vehicle the cheaper and more regular are the contacts with other communities. Question 5 suggests that the standard of living should improve as the price of acquiring things is reduced. By the same reasoning, goods that are saleable can now be brought to market at a marketable price.

3. The use of steam power allows movement of larger craft at hitherto unattainable speeds, allows such speeds to be maintained consistently, and allows the craft to move effectively in any direction. Due to the size of the craft a minimum of six feet of water and a means of by-passing "white water" or rapids are required.

4. The need for navigable waters means that effective use of the steamboat will require considerable capital outlay (canals). These financial risks will have to be taken, in many cases eagerly, if the colony is to break out of its slow, subsistent way of life.

## PAGE 39

We find our new transportation experiences applied to the community of Hamilton; to relate environment to transportation facilities and how a community prospers, we compare Dundas with Hamilton.

1. To properly appreciate Dundas' position, the student should use the map on page 39 (the local view) and the one on page 40 (the regional view). Together they demonstrate the advantage of being at the 'Head of the Lake' and at the old Niagara gap in the escarpment. All the roads indicate that this gap was used for travel into southwestern Ontario. Thus, Dundas is ideally located for road travel. Travellers to the Niagara region could use the 'Beach Strip'. The 'High Level' scenic route, so obviously suited for road development, suffered where the stream cut through from the Dundas marsh. Consequently, Hamilton was not located at the main road arteries. The hypothesis is easily established that Dundas has a preferable position as far as road travel is concerned.

2. Travellers coming by water might seek the safety of Hamilton's port facilities now that the canal has been dug through the 'Beach Strip'.

Heavily laden boats would use these deep-water facilities providing the cargo could be transported from Hamilton to the market places. Boats could not navigate the narrow, marshy stream that connected Dundas with Lake Ontario. The advantages of steamboat transport over road transport soon caused Hamilton to become a busy port.

3. These advantages did not go unnoticed in Dundas, and by 1837 the village had developed a canal for steamboats. As a port the village was not a success, as Hamilton's dock and mercantile facilities were by now well established. When the Desjardins Canal was opened, the Burlington Canal had already been in use eleven years. Also, it soon became apparent that Dundas' port facilities were too limited for large craft. Movement of traffic and "parking" facilities were not adequate for major development.

4. 1) Both have "bee-hives" symbolic of a busy industrious community. The words on the Hamilton crest tell you so, and the beaver also symbolizes an industrious community.

2) As we have said, steamboats will find Dundas inadequate. Thus, Hamilton, not Dundas, will benefit.

3) The slogan 'I ADVANCE' and the sun rising on a glorious future suggests unbounded optimism.

## PAGE 40

1 & 2. The steam engine relates to the cart and the coach as another means of land travel. It relates to the steamboat in the use of new steampower.

3. We saw how Dundas was well placed for land travel. The use of steampower for land travel should revive the fortunes of the village. A reasonable hypothesis, although not an accurate one.

4. The map on page 40 is not topographical and does not show hills, valleys, etc. A straight line route will probably run into environmental problems. Why have no major towns developed along the north shore of Lake Erie? Being aware that steam engines dislike steep hills, students should choose a route along the river valleys such as the Thames and the Grande Rivers. Because of high investment, tracks should run through as many large communities as possible.

## PAGE 41

1. This is a topographic type of map. It shows the escarpment from an oblique, aerial view.

The valley of the Thames River would be a natural route. The valley of the Grande River is more of a gorge and probably difficult to use as a railway route. The north shore of Lake Erie is attractive because it ties in with shipping. There are, however, no ports along this shore. The map tells you why. The shore-line is cliff-like and lacks natural harbors. To run a railway along the north shore would be expensive because of the many gulleys and ravines which would have to be bridged.

To follow the shore line of Lake Ontario would not be practicable as the track would have to run down a steep cliff, along the escarpment (probably at the Dundas gap) and then up again to Buffalo. The best route would be to follow the Thames Valley, pick up as many towns as possible, along



the rim of the escarpment to the bridge at Niagara Falls, then along the east bank of the Niagara River into Buffalo.

#### PAGE 42

The McNab letter can be used to prove the obvious advantage of going through towns. If Hamilton is willing to invest \$100,000, it would be good to reconsider the route. The poster on the same page suggests the builders must have agreed. Unfortunately, little Dundas could not offer such monetary attraction. Besides, Hamilton had the port facilities and the trade that would bring returns to the railway.

#### PAGE 43

With evidence on the preceding pages, the class should have a clear idea of the proposed Buffalo to Detroit route. We see the actual route and the actual name of the railway. The list of towns through which the Great Western passes does not include Dumfries, Galt, Brantford or Dundas. We want to explain the absence of Dundas but we will not attempt to explain the omission of other towns.

2. This confirms that simple straight-line solutions usually do not solve the problems faced by man. We have enough evidence to support this generalization.

3. This should be a review discussion.

4. We should have sufficient information to appreciate the reasons why the railway builders ran the line below the escarpment.

5. Dundas is bypassed due to the engineering problems of grade or incline. Although there is a break in the escarpment, the slope is steep and must be taken gradually. This means the railroad passes above the town before reaching the lower level. Any railway dreams Dundas may have had, were therefore shattered. Notice that it was found expedient to fill in the original Desjardins Canal and build a new one that was easier to bridge.

#### PAGE 44

Careful observation is essential to understand the steps. The diagrams are simplified and condensed. Essentially, they show the weighing and dumping into blastfurnaces of the three major raw materials used in steel production. There they are melted. The heavier iron sinks to the bottom through the force of gravity discussed in the chapter on milling. (review here.) The lighter 'slag' floats above. Slag is made up of limestone, ash from coke and the impurities contained in iron ore. The iron is removed from the furnace by a 'tap' (or hole) which is opened at the bottom of the furnace by the use of a small blast of explosive. Once the iron has drained out, small pig iron cars move the molten metal to the open hearth furnace. Meanwhile, the slag is drained from the furnace and removed to another part of the plant to be used as fill for marshland at the harbor, or sent elsewhere to be used as a source for gravel. The blastfurnace will be loaded continually with new raw material. This process continues day and night, week in week out. The blastfurnaces of a steel mill are seldom idle.

#### PAGE 45

The 5th step in the steel making process is the open hearth method. The information in the right-hand column is important in understanding this step. The diagram contains much of the information needed to answer the questions. Encourage careful observation.

The most important differences between the open hearth and the blastfurnace methods are the materials which are added, and the shape of the furnaces. Many of the other features are similar. The product of the open hearth method is somewhat different. It is important to bring this to the attention of students.

It would add to understanding these steps if supplementary pictures of a steel mill were available. Most steel companies are more than willing to send illustrative brochures and pictures showing the operations of their plants. This information would be particularly useful in answering question #7. The modern steel plant requires large areas of level land for the many buildings used in steel-making. The photograph on page 55 could be used to illustrate this point. The final step shown on the diagrams (#6) is essential: getting the steel into a shape or form which the user would find convenient. It also makes the steel easier to ship as it has been reduced in weight, is smaller in size and in a shape which is easier to handle. It can lie flat on a truck, in a railway car, or in the hold of a ship. During this step large amounts of water are used. A large supply of water is a prime factor in steel production as it is used to cool and clean.

#### PAGES 46 – 47

The maps are to different scales. The one of the grist mill covers a smaller area and is more detailed than the one of the iron and steel mill. Students should discover these differences for themselves by examining the maps. The arrow on the grist mill map and the 'visual' scale on the iron and steel map will enable them to compare the different distances.

In the second question the locations of the three raw materials, iron ore, coal and limestone are indicated by dots. Hamilton is shown with a square symbol at the western end of Lake Ontario. Some discussion might be needed to establish the cheapest means available to transport raw materials. It might be useful to list the following statistics.

large lakeboat	— 27,000 tons
large train	— 7,000 tons
large truck	— 50 to 70 tons

The steel mill at Hamilton used between 3 to 4 million tons of raw materials a year in the 1940's and 1950's. In the 1940's much of the raw materials came from the United States as shown on the map. In investigating present day sources of iron ore, coal and limestone, the students might consult up-to-date Canadian geography books investigating places such as Steep Rock, Schefferville, Kirkland Lake, Gagnon and Labrador City. Much of the coal is still imported from the United States, while Canadian steel mills have been developing iron ore deposits in Northern Ontario and Quebec. Limestone can be obtained near Hamilton as shown on the map on page 47.



The major benefit to Canadians in producing their own iron and steel is that large numbers of workers find employment in the steel mills which produce for other Canadian companies.

#### PAGE 48

The most likely routes to Hamilton were probably the Great Lakes. One major obstacle had to be overcome before iron ore and coal boats could reach Hamilton: Niagara Falls. The Welland Canal was the solution. Most of the towns shown on the map are along the canal and have benefitted from their location. Students should examine the problems which early shipping companies on the Great Lakes faced in navigating this inland waterway. They should be encouraged to discuss solutions and check their ideas against realities. The steel industry in Hamilton could not really develop until a way was found to bring iron ore and coal to the city. The first canal was completed in 1829 but proved too small. The latest (fourth) Welland Canal was completed in 1932 and can accommodate most of the larger vessels using the Great Lakes.

#### PAGE 49

Differences in scale appear again. The maps cover different areas and show different details. The most important points to be discovered:

- 1) the excellent location of Hamilton.
- 2) the excellent transportation facilities available by water (Great Lakes) or by land (railways) to get the steel products to markets. Since Hamilton is Canada's largest steel center it has to be near these markets.

#### PAGES 50 – 51

Students must review the information on previous pages and solve the puzzle as to where to locate their steel mill on the map.

Steps in steel-making not carried out in Hamilton included the first five shown on pages 44 & 45. Step 6 would have been carried out in the United States before shipment of pig iron to Canada. In 1910 the only products made in Hamilton were those listed on page 50 under "Original Products". This date might be pointed out to the students. Instructions suggest the best spots for the steel mills in Hamilton are along the south shore of Hamilton Harbor in the northeast (top right-hand) corner of the map. Vacant, cheap, flat land was available at that time. Emphasize the importance of using surplus slag from the blast-furnace operation to provide the 'fill' to reclaim the marshy land along the harbor shore.

The railway strips may be cut up to fit in between the various buildings and land uses. It might be an interesting exercise to ask students to compare their arrangements with those of their classmates and see how they differ.

#### PAGE 52

The 'Steel Family' is vital to Hamilton as many jobs have become available in industries other than steel. Most of them are located in Hamilton near the source of their raw material needs. All, or nearly all of the steel these companies use is produced in Hamilton. Only very special steels and certain other metals are brought in from elsewhere. The largest users of steel are located closest

to the steel plants. The smaller ones are further south along the rail line. Since this land is closer to the city and on higher ground, it was more expensive to acquire. Chemicals are the only other large industry in the area, using the gases and tars obtained from burning coal into coke, to produce paints, industrial chemicals and fertilizers. In turn, the steel industry uses chemicals for its operations. This 'interdependence' is important in explaining industries in Hamilton.

#### PAGES 54 – 55

Discussions on the ideas of the community can be comprehensive and pervasive. The community as a dynamic, living thing:

- (a) producing goods and services
- (b) distributing goods and services
- (c) needing rules and regulations
- (d) providing protection and security
- (e) providing education
- (f) providing recreation
- (g) having form, size and composition and establishing relationships.

1. Schools, like steelworks, have buildings, rooms, raw materials (if we can think of pupils in this way), water fountains, cafeterias, rest rooms, projectors, teachers, parking lots, landscaping, etc.

Students should be encouraged to fit the scene on page 54 into the aerial photograph on page 55. Note the presence of cars and buildings close to the blastfurnaces and how material dumps should be used as evidence in formulating answers.

The students should be encouraged to visualize and talk about the way the artist depicts the inside of the building and where cars are parked. The ability to look at things in different ways is an important skill in social studies.

The picture on page 55 should be considered as an iron and steel community and examined from the point of view of lay-out and its relationship to the environment. Refer to pages 48, 49, 50, 51 etc.

#### PAGES 56 – 57

The comic strip tells a story. It will require an ability to analyze, describe, relate and interpret.

The children leave the bus and meet the tour guide. He issues them with hard hats, safety glasses and information on safety. They are taken to see one function of this community – the production of goods. Note the need for rules and regulations in the community.

The ore docks are being fed from a large ship. The coke-ovens are visited; the flaming coke is being pushed into hopper cars. The gas obtained from the coke-ovens is taken in large pipes to heat the blastfurnace; the coke in the hopper cars will also be used to heat and melt iron ore. The children see long trains of scrap iron being taken to the open hearth and melted. Molten steel is removed by an overhead crane and poured into ingots. These are later rolled into sheets, bars and other products. The class stops for refreshments and visits the secretarial staff in the office building.

Questions should be asked about the automation of a modern steel plant. Other questions might include the need for educating workers, the network of communications, etc.









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#### PAGES 58 – 59

Discuss the wise use of community resources, initiate activities where students may contribute to the conservation of clean air, water and landscape. Is built-in obsolescence wise? How much have cars contributed to air pollution? What is being done to correct this? Who pays? Can you comment on the using up of vital oil and gasoline resources? Do we owe it to future generations to conserve these resources? What would happen to the jobs of people if we altered our buying habits? It is important that the class consider all aspects of the pictures on pages 58 & 59, and that they realize the meaning of the term "non-renewable resources", cite examples and form value judgments.

#### PAGES 60 – 61

Contemporary community events may lead to discussion and activities related to laws and by-laws, to elections and appointments, to meetings of government officials at the local, provincial and national levels. The recognition of the rights and duties of citizens may emerge from a newspaper headline or from a planned visit to a civic building. Such topics should be given precedence and treated seriously.

Ideas such as inflation, budgeting, price controls or the absence thereof, collective bargaining, job security, democratic procedures in electing

and voting on issues are incorporated in the pictures. Once more, both sides of the story should be considered.

#### PAGES 62 – 63

In Year 3 the focus is not only on a community, its history, growth and present geography, but on providing a framework for the development of mapping skills, reading, organizing, interpretation, research and reporting. Life in an industrial community embraces production methods (p. 56-57), management practices (p. 60-64), labour union activities (p. 60-61, 62-63) and services. Students should consider the significance of good public relations, of being a good corporate citizen, of helping to establish a better environment for citizens in an industrial community, and how companies and unions are concerned with these aspects. Research should also be done on the subjects of wages, work conditions and dividends.

Eight and nine-year-olds are aware of and interested in communities outside their own. They will enthusiastically plan enquiries when their interests are aroused. A teacher can channel that enthusiasm into research on family life in the community, its institutions and its adaptation to the environment. Discussions of current affairs can challenge and strengthen the increasing maturity of these children. Data about the growth and development of communities can be obtained and relationships between provincial and national affairs should be considered.

LONGHOUSE TO BLASTFURNACE,  
Teachers' Guide.

MAN IN HIS WORLD  
James Forrester, Co-ordinator

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